

PATTERNS OF INDIAN DEPOPULATION IN EARLY COLONIAL ECUADOR*

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Algunos autores han estimado que la población amerindia de Boriquén (Puerto Rico) al comienzo del Periodo de Contacto era alta. Un sinnúmero de fuentes documentales y estudios arqueológicos nos obligan a cuestionar estos estimados. Dado que Puerto Rico se considera uno de los centros del «taíno clásico», creemos necesario reevaluar en profundidad los cálculos sobre la población prehispánica de la región.

PALABRAS CLAVES: *Ecuador, despoblación, conquista española, enfermedades del Viejo Mundo, empresas económicas, misiones.*

Woodrow Borah's work extended beyond estimates of native populations in 1492 and the demographic impact of Spanish colonial rule, particularly in Mexico and Hispaniola, but it is arguably this work, undertaken with the anthropologist, Sherburne Cook, and the biologist, Lesley Byrd Simpson, for which he is best known¹. Borah and Cook pioneered the application of statistical methods to the vast, but often fragmentary, tribute records that exist for Mexico², producing high estimates for the aboriginal population of Central Mexico, and later for His-

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¹ For a full bibliography of Woodrow Borah's writings up to 1985 see James W. WILKIE and Rebecca HORN, «An interview with Woodrow Borah», *Hispanic American Historical Review*, Vol. 65, 3, 1985, pp. 437-441.

² Woodrow BORAH and Sherburne F. COOK, «Conquest and population: a demographic approach to Mexican history», *Proceedings of the American Philosophical Society*, Vol. 113, 1969, pp. 177-183.

paniola³. The severe criticism that their estimates have often drawn⁴ has tended to overshadow the very real methodological contribution that their work made to the study of Latin American historical demography. The scale of the demographic collapse implied by Cook and Borah's estimates suggested that the introduction of Old World diseases played a major role in the decline, a conclusion to which Borah subscribed. However, it is clear from a careful reading of his publications that he also believed that social and economic factors were vital in understanding demographic change.

This main aim of this paper is to take up a significant theme in Woodrow Borah's work that of regional variations in population decline. Borah was one of the first scholars to highlight differences in demographic trends between the highlands and lowlands, particularly in Mexico and Colombia⁵. His explanation for these differences was largely environmental, focussing on the role of tropical fevers in the depopulation of the lowlands and on the movement (often forced) of peoples between climatic zones. The paper will examine these propositions in the context of early colonial Ecuador, but the analysis will extend beyond a discussion of demographic trends in the highlands and lowlands to an examination of regional variations *within* those broad regions. The paper suggests that differences in levels of depopulation were strongly correlated with differences in the intensity of Spanish settlement and the types of activities that were established there. It will show how demographic trends for the country as a whole mask significant regional variation⁶.

NATIVE SOCIETIES AND ENVIRONMENTS IN ECUADOR IN 1492

There were marked regional differences in the character and size of native populations in Ecuador and the environments in which they lived that significantly affected demographic trends in the colonial period. Ecuador can be divided into three major geographical divisions - the sierra, the Oriente and the coast. In Ecuador the Andes comprise two cordillera rising to about 4.500m, which are separated by a narrow interandean corridor or *callejón* that is broken up into a series of basins or *hoyas* located at between 2.000m and 3.200m. At the time of Spanish conquest these basins were inhabited by a number of chiefdoms,

³ Sherburne F. COOK and Woodrow BORAH, *Essays in Population History*, Berkeley and Los Angeles, University of California Press, 1971, Vol. 1, pp. 376-410.

⁴ For example, David HENIGE, *Numbers from Nowhere: The American Indian Contact Population Debate*, Norman, University of Oklahoma Press, 1998, pp. 29-64.

⁵ For Colombia see: COOK and BORAH [3], Vol. 1, pp. 411-429.

⁶ This paper is based on research that is presented more fully in my book *Life and Death in Early Colonial Ecuador*, Norman, University of Oklahoma Press, 1995.

the Pasto, Caranqui-Otavalo, Panzaleo, Puruhá, Cañar and Palta⁷. These societies were supported by intensive forms of agricultural production that involved the construction of raised fields, irrigation, and some terracing⁸. Communities were fairly small and dispersed, but they were integrated into larger polities, each headed by a chief to whom they paid tribute in labour and goods, and these in turn might form confederations of over 100.000 people headed by a paramount chief. It has been estimated that at the time of Spanish arrival the population of the Ecuadorian sierra was about 850.000⁹.

The Oriente of Ecuador comprises the lowland headwaters of the Amazon that are largely covered with tropical rain forest. However, the flanks of the eastern Cordillera, known as the *montaña* or high *selva*, can be distinguished from the lowlands proper. These eastern slopes form a transitional zone of relatively rugged terrain at about 2.000m, which is dissected by fast flowing rivers that cascade to the lowlands carrying gold deposits. Groups that inhabited this environment included the Cofán, Coronado, Quijo, Macas and the Bracamoro-Jíbaro branch of the Jíbaro. The lowlands proper form part of the headwaters of the Amazon where, with the exception of the banks of rivers known as *várzeas* that are annually fertilized by floodwaters, the soils are generally less fertile¹⁰. The low *selva* was home to the lowland Jíbaro and members of the Tucanoan, Kandoshi, Zaparoan, and Panoan cultural-linguistic groups, while the Omagua occupied the *várzea*. The Oriente was inhabited by tribal peoples whose livelihood was based on a combination of swidden cultivation, hunting, fishing and gathering. These societies were not markedly stratified, though war leaders and shamans achieved some status. Population densities tended to be higher in the *montaña*, but with the exception of the Omagua, settlements were small and dispersed. It has been estimated that the total pre-Columbian population of the Oriente may have been between 230.000 to 250.000 people¹¹.

The coast was a region of cultural and environmental diversity. The northern coast of Esmeraldas is covered by tropical rain forest but only a few hundred

⁷ Frank L. SALOMON, *Native Lords of Quito in the Age of the Incas*, Cambridge, Cambridge University Press, 1986; Chantal CAILLAVET, *Etnias del norte: etnohistoria e historia de Ecuador*, Quito, Ediciones Abya Yala, 2000.

⁸ Gregory KNAPP, *Ecología cultural prehispánico del Ecuador*, Quito, Banco Central del Ecuador, 1988, pp. 122-132.

⁹ NEWSON [6], pp. 58-60. This figure represents a significant reduction on population levels prior to Inka conquest which had begun some seventy to eighty years previously and in which maybe 100.000 people died (p. 140).

¹⁰ Anne-Christine TAYLOR and Philippe DESCOLA, «El conjunto Jíbaro en los comienzos de la conquista española del alto Amazonas», *Bulletin d l'Institut Français d'Études Andines*, Vol. 10 (3-4), Lima, 1981, pp. 7-54; NEWSON [6], pp. 79-116; William M. DENEVAN, *Cultivated Landscapes of Native Amazonia and the Andes*, Oxford, Oxford University Press, 2001, pp. 55- 64.

¹¹ Linda A. NEWSON, «The population of the Amazon Basin in 1492: a view from the Ecuadorian headwaters», *Transactions of the Institute of British Geographers NS*, Vol. 21, 1996, pp. 9-15.

miles to the south ecological conditions become almost desert-like, while the greater part of the lowlands is made up of the fertile floodplains of three major rivers - the Guayas, Esmeraldas and Santiago. Indian groups on the coast from north to south included the Malaba, Esmeralda, Manta, Huancavilca and Puná. They comprised tribes or small chiefdoms, with social stratification and political integration being more highly developed to the south of the River Chone and on the coast of Esmeraldas¹². Most groups practised shifting cultivation, but more intensive forms of production that involved terracing and raised fields were found in the south¹³. Those living near the coast were also skilled fishers and professional traders. These cultural differences were reflected in differences in population density, such that about 87 per cent of the estimated aboriginal population of 560.000 of the coast was to be found in the south¹⁴.

At the time of Spanish arrival it has been estimated that the total population of Ecuador was about 1.6 million, of which just over one half (51.2 per cent) were living in the sierra, slightly more than one third (34.1 per cent) on the coast, and the remainder (14.7 per cent) in the Oriente¹⁵. Table 1 includes estimates for both the aboriginal population and levels of decline during the sixteenth century. In the case of the low *selva* region of the Oriente estimates of levels of decline are based figures for the end of the seventeenth century since Spanish contacts and hence documentary sources are limited for the sixteenth century. Leaving aside estimates for the low *selva*, the figures suggest that by the end of the sixteenth century the population had declined by about 85 per cent. However, there were notable differences between the sierra, Oriente and coast, with the decline being highest on the coast, but the sierra registering higher levels of decline than the Oriente. However, they also suggests that there were significant differences in levels of decline within those broad regions varying between 57 and 99 per cent. Regional variations in demographic decline have received less attention than considerations of the *relative* importance of Old World diseases and the actions of Spanish conquistadors, and where they have been noted they have often been attributed to the differential impact of disease or associated with mining or to a lesser extent an urban centre. This paper will examine these propositions, but will extend the analysis further to examine the impact of other Spanish activities, especially the economic enterprises they established. However, since the most common explanation for regional differences in native population decline is the differential impact of Old World diseases, this will be considered first before demographic trends in individual regions are analysed.

¹² Dora L. BORJA DE SZÁSZDI, «Prehistoria de la costa ecuatoriana», *Anuario de Estudios Americanos*, Vol. 21, Sevilla, 1964, pp. 381-436.

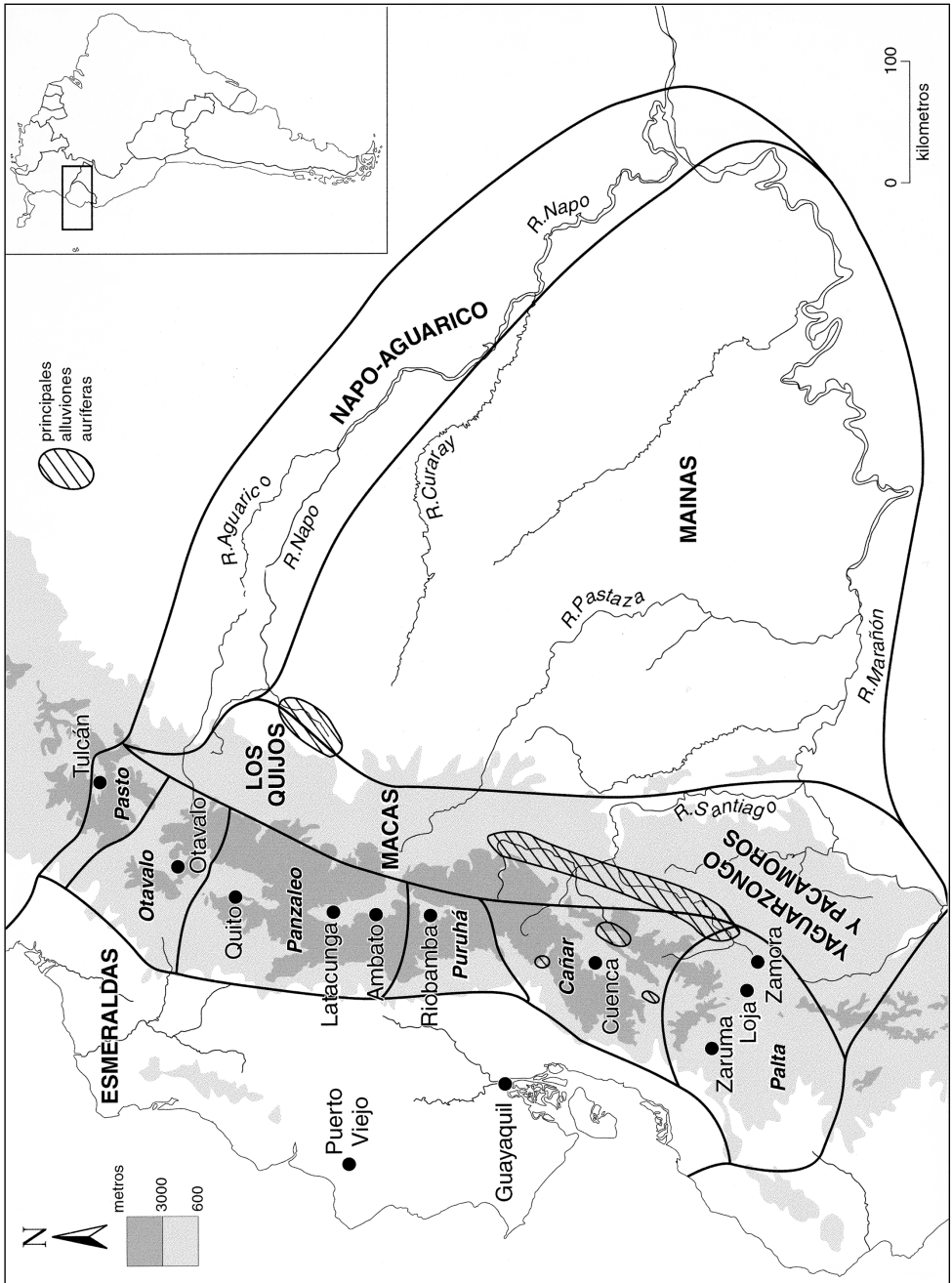
¹³ DENEVAN [10], pp. 227-233.

¹⁴ NEWSON [6], pp. 77-78.

¹⁵ These estimates are discussed fully in NEWSON [6].

TABLE 1.
Estimated Indian Populations in Early Colonial Ecuador

Region	Dominant Commercial Economic Activities	Estimated Aboriginal population	Native Population Circa 1600	Per cent decline	Depopulation ratio
SIERRA					
Pasto	Agriculture	36,350	15,505	57.3	2.3:1
Otavalo	Textile Manufacture, Agriculture	150,000	29,466	80.4	5.1:1
Quito Basin	Urban services, Textile manufacture, Agriculture	190,000	30,750	83.8	6.2:1
Latacunga/Ambato	Textile manufacture, Agriculture	160,000	31,938	80.0	5.0:1
Riobamba	Textile manufacture, Agriculture	131,250	32,574	75.2	4.0:1
Cuenca	Agriculture, Mining	58,500	12,600	78.5	4.6:1
Loja	Mining, Agriculture	112,500	11,696	89.6	9.6:1
TOTAL		838,600	164,529	80.4	5.1:1
COAST					
Esmeraldas		69,098	20,000	71.1	3.5:1
Puerto Viejo		120,000	2,961	97.5	40.5:1
Guayaquil	Port activities	357,230-382,730	3,530	99.0	104.9:1
TOTAL		546,828-571,828	26,491	95.3	21.1:1
ORIENTE					
HIGH SELVA					
Los Quijos	Mining	35,000	10,000	71.4	3.5:1
Macas		10,000	2,700	73.0	3.7:1
Yaguarzongo and Pacamoros	Mining	53,000	13,500	74.5	3.9:1
TOTAL		98,000	26,200	73.3	3.7:1
LOW SELVA		Estimated Aboriginal population	Circa 1700	Per cent decline	Depopulation ratio
Napo-Aguarico		49,000-51,000	6,000	87.8-88.2	8.3:1
Mainas		83,000-102,000	30,180-38,490	63.6-62.3	2.7:1



REGIONAL VARIATIONS IN THE IMPACT OF OLD WORLD DISEASES

In common with many regions in Spanish America, by 1600 Ecuador had probably been devastated by epidemics of smallpox, measles, plague, typhus and influenza, in addition to which malaria may have become established¹⁶. However, the incidence of these diseases and their impact was not uniform but highly influenced by the country's physical environment and the size and distribution of the populations they affected¹⁷. It has often been argued that higher levels of depopulation in tropical coastal lowlands of Latin America were due to the impact of tropical fevers, such as malaria and yellow fever, and possibly to the greater virulence of some other diseases, such as intestinal infections, in tropical climates¹⁸. In drawing attention to the marked difference in levels of depopulation between the highlands and lowlands of Mexico in the sixteenth century, Cook and Borah commented, «The relationship between altitude (climate, of course) and the degree of destruction of population is startling»¹⁹. As noted above, differences in levels of depopulation between the highlands and lowlands do not appear to be so marked in Ecuador, at least in the sixteenth century, and this may reflect in part the limited impact of the tropical fevers.

Coastal Ecuador, notably Guayaquil, suffered from epidemics of yellow fever in the eighteenth century²⁰, but there is no evidence that it struck Ecuador prior to this time. Indeed, epidemiologists and historians generally consider its arrival in the Americas to date from the mid-seventeenth century²¹. The case of malaria is less clear. It seems unlikely that malaria spread to the Oriente in the early colonial period. Although soldiers and missionaries who penetrated the Oriente sometimes commented on the presence of annoying insects, they do not appear to have suffered from fevers and they generally described the region as healthy. Even

¹⁶ Suzanne A. ALCHON, *Native Society and Disease in Colonial Ecuador*, Cambridge, Cambridge University Press, 1991, pp. 37, 59; Linda A. NEWSON, «Epidemics in early colonial Ecuador», N. David COOK and W. George LOVELL (eds.), *«Secret Judgments of God»: Old World Diseases in Colonial Spanish America*, Norman, University of Oklahoma Press, 1992, p. 111.

¹⁷ See Linda A. NEWSON, «Highland-lowland contrasts in the impact of Old World diseases in early colonial Ecuador», *Social Science and Medicine*, Vol. 36, 9, 1993, pp. 1187-1195.

¹⁸ COOK and BORAH [3], Vol. 2 pp. 176-179. They make similar comments about the relationship between climate and depopulation in Colombia (see Vol. 1 p. 429).

¹⁹ BORAH and COOK [2] p. 181.

²⁰ Ronn F. PINEO, «Misery and death in the pearl of the Pacific: health care in Guayaquil, Ecuador, 1870-1925», *Hispanic American Historical Review*, Vol. 70, 1990, p. 614.

²¹ Donald B. COOPER and Kenneth F. KIPLE, «Yellow fever», Kenneth F. Kiple (ed.), *The Cambridge World History of Human Disease*, Cambridge, Cambridge University Press, 1993, pp. 1102-1103; N. David COOK, *Born to Die: Disease and New World Conquest, 1492-1650*, Cambridge, Cambridge University Press, 1998, pp. 178-182.

today malaria is relatively uncommon in the Oriente because of the low population density²².

The question of the spread of malaria to the coast of Ecuador is more difficult to resolve. Elsewhere I have argued that the fevers experienced by Spanish expeditions on the coast may have been the result of starvation caused by inadequate provisions or, based on descriptions of insects on the coast, due to the activities of sandflies rather than mosquitoes²³. If malaria was present in the sixteenth century then it is likely to have been the more benign form, *Plasmodium vivax*, which was introduced by Spaniards, rather than the more acute form, *Plasmodium falciparum*, which probably entered later with African slaves. Some slaves were shipwrecked on the coast in 1553, but even if some were carrying malaria, the disease organism would probably not have become established before coastal populations had already experienced a catastrophic decline. However, in the lowlands intestinal diseases such as dysentery, typhoid, hookworm and other helminthic infections, are likely to have been more prevalent, especially in humid regions, and may have increased the susceptibility of lowland populations to other deadly diseases. Indeed Cook and Borah have correlated variations in depopulation in Yucatán with the presence or absence of rainfall and surface moisture, and hence water-borne diseases²⁴. There is some palaeopathological evidence to suggest that in pre-Columbian times infections were more prevalent on the humid north coast of Esmeraldas²⁵, but any difference in their impact in the colonial period would have been masked by the considerably greater devastation caused by Old World diseases.

Disease organisms have environmental limits beyond which they cannot survive, but cultural factors also exert significant influences on the spread and impact of acute infections²⁶. Most notable among these are the size and distribution of native populations. Larger populations not only attracted Spaniards thereby increasing the likelihood of infections being introduced, but also facilitated their spread. Hence they initially took their heaviest toll in the highlands often carry-

²² Temístocles AYALA MORA, «Epidemiología de la malaria en el Ecuador y su evaluación en la campaña de erradicación», *Revista Ecuatoriana de Higiene y Medicina Tropical*, Guayaquil, Vol. 14, 1957, p. 31; Axel KROEGER *et al* «La salud y la alimentación entre los indígenas Schuaras del Ecuador», *Revista Ecuatoriana de Higiene y Medicina Tropical*, Vol. 30, Guayaquil, 1977, p. 161.

²³ NEWSON [16], pp. 102-104.

²⁴ COOK and BOARH [3], Vol. 2, p. 177.

²⁵ Douglas H. UBELAKER and Linda A. NEWSON, «Patterns of health and nutrition in prehistoric and historic Ecuador», Richard H. STECKEL and Jerome C. ROSE (eds.) *The Backbone of History: Health and Nutrition in the Western Hemisphere*, New York, Cambridge University Press, 2002, pp. 343-75.

²⁶ On cultural influences on the spread and impact of Old World diseases see Newson [18], pp. 1191-1193; Linda A. NEWSON, «A historical-ecologic perspective on epidemic disease», William BALEÉ (ed.), *Advances in Historical Ecology*, New York, University of Columbia Press, 1998, pp. 48-57.

ing off one-quarter or even one-third of the populations that they struck. However, over time their larger populations enabled them to develop some immunity to infections so that subsequently diseases such as smallpox and measles became relatively benign infections of childhood. There is some evidence that in the early seventeenth century highland populations in Ecuador were beginning to recover, but there is some debate as to whether the demographic recovery was real or reflected better record-keeping or immigration from adjacent regions²⁷. As yet there is insufficient evidence to suggest that the impact of Old World diseases differed significantly within the sierra.

Populations in the lowlands were relatively small and dispersed and, with the exception of Guayaquil and its hinterland, attracted far fewer Spaniards. This meant that the opportunities for the introduction of infections were fewer and once introduced their spread was slow and 'fade outs' were common. Due to the lack of constant exposure to infections native populations were unable to develop any immunity to them. As a consequence, although communities might remain disease free for long periods, when diseases spread to these regions they took a heavy toll of adults as well as children. Adult mortality has particularly adverse demographic effects since it may undermine food production and reduce populations below critical thresholds that would enable them to recover²⁸. The impact of epidemics might therefore be more disastrous among these groups, but during the sixteenth century the opportunities for the introduction of infections were more limited. One exception was the southern coast of Ecuador, where port of Guayaquil became the main entry point for the whole of the *Audiencia* and a major stopping place for ships passing to and from Central America and Peru. As such the region was particularly vulnerable to the introduction of diseases, while the crowded and squalid conditions in the port also encouraged their spread. Old World diseases are likely to have been a major, though not the only factor accounting for the exceptionally high level of decline on the southern coast, where at the end of the sixteenth century perhaps only about one per cent of the aboriginal population remained. Hence with the exception of Guayaquil and its hinterland, in early colonial Ecuador the sharp distinction in the impact of Old World diseases impact between the highlands and lowlands is not evident.

COLONIAL OBJECTIVES AND NATIVE SOCIETIES

In order to achieve the dual aims of generating wealth, while 'civilising' native peoples and converting them to Catholicism, the Spanish attempted to im-

²⁷ Karen Viera POWERS, *Andean Journeys: Migration, Ethnogenesis, and the State in Colonial Quito*, Albuquerque, University of New Mexico Press, 1995, pp. 32-34.

²⁸ NEWSON, [26], pp. 52-53.

pose the *encomienda* and systems of forced labour. However, this only proved practicable where native societies had been used to paying tribute and providing labour for extra-communal purposes in pre-Columbian times²⁹. Where such structures did not exist and native societies were too small to generate significant wealth in the form of tribute or labour, they were entrusted to the missionary orders for their preliminary conversion and 'civilization'. Hence, in Ecuador the *encomienda* and forced labour systems generally became features of colonial life in the sierra and in certain parts of the southern coast and the *low selva*, but elsewhere, and particularly in the Oriente tribal groups became subject to missionization.

The *encomienda* and missions had quite different demographic impacts, partly because of the character of the institutions themselves and partly because of the nature of the societies they affected. Indian communities allocated in *encomiendas* were generally able to survive to a greater degree than those subject to missionisation, since in broad terms the changes demanded by colonial rule did not require such fundamental economic, social and political restructuring³⁰. Other things being equal, therefore, the chiefdoms of highland Ecuador, which were subject to the *encomienda*, had a greater chance of surviving Spanish colonial rule than tribal groups in the lowlands that became the focus of missionary activity. While this conclusion might be valid for the whole colonial period, the distinction between the impact of these two institutions is not discernable in the early colonial period since missionaries did not begin their work in earnest until the seventeenth century. In fact at that time the lack of interest in tribal peoples, except where gold deposits were found, probably moderated levels of depopulation. For the sixteenth century therefore the difference in levels of population decline between the highlands and lowlands was not so marked. More significant in explaining regional variations in depopulation was the relative intensity of Spanish settlement and the degree of penetration of commercial forms of production with which it was associated. Commercial enterprises generated demands for labour, brought about the alienation of Indian lands and fostered racial mixing. Not only did the *intensity* of commercial penetration influence native survival, but also the *types* of enterprises that were established. The relationship between native depopulation and mining has long been acknowledged and textile manufacture was renowned for its harsh working conditions³¹. Less often recognized is that different forms of agricultural production, for example, sugar, cacao, cereal production or ranching, might generate different demands for land and labour,

²⁹ Linda A. NEWSON, «Indian population patterns in colonial Spanish America», *Latin American Research Review*, Vol. 20, 3, 1985, pp. 49-51.

³⁰ *Ibidem*, pp. 51-62.

³¹ Robson B. TYRER, *The Demographic and Economic History of the Audiencia of Quito: Indian Population and the Textile Industry, 1600-1800*, Ph.D. diss., University of California, Berkeley, 1976, pp. 104-105; Richard J. SALVUCCI, *Textiles and Capitalism in Mexico: An Economic History of the Obrajes, 1539-1840*, Princeton, NJ, Princeton University Press, 1987, pp. 106-24.

and hence threaten the viability of native communities to different degrees³². Due to the diversity of economic enterprises established in early colonial Ecuador it provides a good testing-ground for these propositions.

The following discussion will examine the relationship between demographic trends and four economic activities in the highlands of Ecuador, namely mining, textile manufacture, agriculture and those associated with an urban centre. Subsequently it will consider variations in levels of depopulation within the lowlands that might be related to the intensity of Spanish settlement and the establishment of commercial enterprises, though these were more limited. In doing so it is recognised that other factors contributed to regional variations in demographic decline, notably the initial impact of Spanish conquest, the Spanish civil wars and the demands for auxiliaries for expeditions, which took their greatest toll in the Quito Basin and the neighbouring regions of Otavalo and Latacunga.

REGIONAL VARIATIONS IN DEPOPULATION IN THE SIERRA

The Mining Region of Loja

The link between Indian depopulation and mining has long been recognized. Mining was by its nature a more hazardous activity than most work in agriculture and it relied heavily on forced labour that was more arduous than that undertaken by free workers. The varied sources of labour employed and the confined conditions under which mining took place also promoted unusually high levels of racial mixing, while fugitivism or migration to avoid forced labour in the mines contributed significantly to population decline in regions from which workers were drafted³³. Mining was not a major economic activity in colonial Ecuador, but for a brief period in the second half of the sixteenth century the gold mines of Zaruma yielded about 200.000 pesos a year³⁴. It was this region that experienced the highest level of depopulation in the sierra of 9.6:1 with an estimated pre-Columbian popu-

³² For example, Murdo J. MACLEOD, «Ethnic relations and indian society in the province of Guatemala ca.1620-ca.1800», Murdo J. MACLEOD and Robert WASSERSTROM (eds.), *Spaniards and Indians in Southern Mesoamerica: Essays on the History of Ethnic Relations*, Lincoln, University of Nebraska Press, 1983, pp. 197-205; NEWSON [29], pp. 63-64.

³³ Peter BAKEWELL, *Miners of the Red Mountain: Indian Labor in Potosí, 1545-1650*, Albuquerque, University of New Mexico Press, 1984, pp. 111-12, 149-51; Jeffrey COLE, *The Potosí Mita, 1573-1700*, Stanford, Stanford University Press, 1985, pp. 23-24, 27; Peter BAKEWELL, «Mining», Leslie BETHELL (ed.), *Colonial Spanish America*, Cambridge, Cambridge University Press, 1987, pp. 224, 228.

³⁴ Archivo General de Indias (hereafter AGI) Patronato (hereafter PAT) 240-6 Cerro de Zaruma, no author, no date; Marcos JIMÉNEZ DE LA ESPADA (ed.), *Relaciones geográficas de Indias*, Madrid, Ediciones Atlas, Vol. 2, p. 307 Relación de lo que es el asiento del cerro y minas de oro de Zaruma 1592.

lation of 112.500 falling to 15.000 to 16.000 in the 1570s³⁵, and with only about 11.700 remaining at the end of the sixteenth century (See Table 1).

Work in the mines involved *mitayos* travelling up to 20 or 25 leagues across rugged terrain that was dissected by deep valleys whose rivers in winter were often swollen with rain and Indians often drowned³⁶. The high costs of mining encouraged mine owners to ignore safety precautions and to exact the maximum amount of labour from workers. Pit props that reinforced gallery ceilings were often dispensed with so that collapsing tunnels occasionally buried miners, while others died of exhaustion carrying ores from the mines to the crushing mills, a task that was meant to be undertaken by mules or horses. Due to the high operating costs, wages were low and scarcely sufficient to live on, yet they were also expected to cover the payment of two pesos a year as tribute. Mining ordinances tried to bring improvements in working and living conditions, but labour in the mines was harsh and considered to be one of the two major causes demographic decline in the region, the other being epidemics. In 1619 residents in Cuenca testified that Indians drafted to work in the Zaruma mines «volvían huyendo a sus tierras, enfermos, con hambre, maltratados, habiendo perdido sus viviendas y sin recibir jornal»³⁷, and as such many were encouraged to flee³⁸.

Racial mixing also contributed to native depopulation for like most mining areas in the New World, Zaruma not only attracted miners and labourers, but also traders who imported European cloth, luxury items, hardware, and African slaves³⁹. A *visita* of Zaruma by the Bishop of Quito in 1581 condemned the very free sexual relations amongst the town's population mixed racial population⁴⁰.

The City of Quito and its Hinterland

After the mining region of Loja, the greatest level of depopulation was in the Quito Basin where the population declined from about 190.000 at the time of

³⁵ JIMÉNEZ DE LA ESPADA [34], Vol. 2, p. 302 Salinas Loyola 1571 or 1572; Biblioteca Nacional Madrid (hereafter BNM) 3178 ff.1-15 Canelas Albarrán 1586.

³⁶ For conditions in the mines see: AGI AQ 211 Real cédula 15.11.1576, PAT 240-6 Ortegón, no date, PAT 240-6 Cerro de Zaruma, no date; Archivo Nacional de la Historia, Quito (hereafter ANHQ) Cedulaio 1 f.469 Real cédula 17.10.1593; JIMÉNEZ DE LA ESPADA [34], Vol. 2, p. 280 Arias Dávila 1.5.1582, Vol. 2, pp. 310-11 Relación de lo que es el asiento del cerro y minas de oro de Zaruma 1592, Vol. 2, pp. 315, 317 Relación del distrito del cerro de Zaruma, no date, and Vol. 2, pp. 323-24 Auncibay 1592.

³⁷ Alfonso ANDA AGUIRRE, *Zaruma en la colonia*, Quito, Casa de la Cultura Ecuatoriana, 1960, p. 67.

³⁸ AGI Audiencia de Lima 29 Relación de los indios de guerra, no date.

³⁹ Chantal CAILLAVET, «Les rouages économiques d'une société minière: échanges et crédit. Loja: 1550-1630», *Bulletin de l'Institut Français d'Études Andines*, Vol. 13 (3-4), Lima, 1984, pp. 35-38.

⁴⁰ AGI AQ 76 Bishop of Quito 28.10.1581.

conquest to about 30.750 at the end of the century, a ratio of 6.2:1. In fact the decline was probably greater since it was partly masked by forced or voluntary migration from surrounding regions. The high level of decline is not surprising since it was here that the capital city was founded and Spaniards settled in largest numbers, creating the greatest demands for labour and highest pressure on Indian lands.

Spanish interest in agricultural production in the Quito Basin developed at an early date, though it is not clear whether this was stimulated by the demands of expeditions or the lack of an alternative source of income. The natural fertility of the region and its relatively abundant sources of labour meant that agricultural products and textiles could be produced cheaply and thus compete effectively in export markets. Initially Spanish interest focused on the raising of livestock, particularly cattle, and on the cultivation of maize, wheat and barley, the last being used for fattening livestock⁴¹. Cattle were raised for meat, while horses and mules were exported to Lima and Charcas, and pigs were marketed to the north in Popayán, Cali, and Anserma. Sheep raising did not develop on a large scale until the emergence of the textile industry in the latter part of the century, and even then the major areas of production were outside the Quito Basin. Most cereals produced were consumed locally, although some flour and *bizcocho* were exported as far as Lima and Panama.

These commercial agricultural enterprises necessitated the acquisition of land. Since the Quito Basin was densely settled, initially Spanish land grants were small, but over time through both legal and illegal means Spanish landholdings became larger and more consolidated, though the Quito Basin remained essentially a region of medium-sized farms rather than large estates⁴². As early as the 1570s Indian villages nearest to Quito were said to have insufficient lands to support their populations, with any lands they retained being mountainous, rocky and impossible to plough or irrigate, and vulnerable to being overrun by straying cattle⁴³. Loss of land encouraged the early proletarianization of the population, a process that was also encouraged by high demands for tribute and labour⁴⁴. Many migrated to Quito where they obtained employment in the textile industry and in a wide variety of services. In 1604 there were 60 illegal *obrajes* operating in the

⁴¹ JIMÉNEZ DE LA ESPADA [34], Vol. 1, pp. 124, 132 Salazar de Villasante, no date and Vol. 2, pp. 212-213 La cibdad de Sant Francisco del Quito 1573; Antonio VÁZQUEZ DE ESPINOZA, *Compendio y descripción de las indias occidentales*, Madrid, Ediciones Atlas, 1969, p. 261.

⁴² Christiana BORCHART DE MORENO, «El periodo colonial», Segundo MORENO YÁNEZ (ed.) *Pichincha: Monografía histórica de la región nuclear ecuatoriana*, Quito, Consejo Provincial de Pichincha, 1981, pp. 223-35

⁴³ AGI PAT 28-13 Salazar de Villasante, no date, AQ 21 Zúñiga 15.12.1574, AQ 8 Oidores 22.1.1578.

⁴⁴ AGI AQ 27 Sancho Díaz de Zurbano, 13.1.1609. See also Christopher R. WALTERS, *Colonial Capitalism, Industrialisation and the Textile Industry in Ecuador: 1550-1750*, Ph.D. diss., University of London, 2000, pp. 116-120.

vicinity of Quito⁴⁵, and they were viewed as a major cause of rural depopulation. Others migrants found employment in Spanish households or established themselves as self-employed artisans and tradesmen, while others manufactured cloth and processed food for sale⁴⁶.

The demographic impact of the alienation of native lands was felt largely through encouraging migration that undermined the viability of native communities and brought about the absorption of migrants into a racially mixed urban population. Although these processes were common throughout the *Audiencia*, they were accelerated in the Quito Basin by the presence of the capital city. In the 1560s and 1570s there were about 300 to 400 Spanish houses in the city⁴⁷, but there was a marked imbalance in the sex ratio that encouraged the growth of a large urban mestizo population⁴⁸. In 1600 there were said to be four mestizos for every Spaniard⁴⁹, and in 1609 Sancho Díaz de Zurbano claimed that there were more mestizos in Quito than in the rest of Peru⁵⁰. Many of these mestizos may in fact have been hispanicised Indians, but since neither would have been included as Indians in official records part of the decline in the Indian population may have been more apparent than real.

Textile Regions of the Central and Northern Sierra

Indian populations in the textile regions of the northern and central sierra declined by between 75 and 80 per cent, which was less than in the mining region of Loja and the Quito Basin. The textile *obrajes* became a notorious feature of the colonial economy of highland Ecuador, with the provinces of Riobamba and Latacunga emerging as the most important wool-producing regions, although textile manufacture was also a significant employer of Indian labour in the city of Quito and in Otavalo. Cloth from the *Audiencia* of Quito was exported all over the Viceroyalty of Peru, from Colombia to Chile, but the main markets were in Lima and in the cattle-raising and mining regions of Nueva Granada.

The first mills were established about 1560 and by the 1620s there were at least fifty mills in operation in the *Audiencia* of Quito, the majority concentrated

⁴⁵ AGI AQ 9 Torres Altamarino 9.4.1604.

⁴⁶ AGI PAT 28-13 Salazar de Villasante, no date, AQ 9 Recalde and Armenteros y Henao 22.3.1611, AQ 86 Villanueva February 1612; JIMÉNEZ DE LA ESPADA [34], Vol. 2, p. 183 *Relación de las ciudades*, no date and Vol. 2, p. 220 *La ciudad de Sant Francisco del Quito 1573*.

⁴⁷ For example, JIMÉNEZ DE LA ESPADA [34], Vol. 1, p. 132 Salazar de Villasante, no date and Vol. 2, p. 169 *Oficiales reales 30.12.1576*; Juan López de Velasco, *Geografía y descripción universal de las Indias*, Madrid, Ediciones Atlas, 1971, p. 218.

⁴⁸ AGI AQ 17 Cabildo of Quito 23.1.1577, AQ 76 Bishop of Quito 12.3.1598; JIMÉNEZ DE LA ESPADA [34], Vol. 2, p. 203 Rodríguez Aguayo, no date.

⁴⁹ AGI AQ 9 Torres Altamarino 15.4.1600.

⁵⁰ AGI AQ 28 Díaz de Zurbano 22.3.1609.

in the central provinces of Riobamba and Latacunga.⁵¹ Initially most of the mills were owned by Indian communities and were founded to facilitate tribute payments, but in reality the costs of administration were so high that communities saw little of the profits⁵². By 1620 the tribute debts of the *encomienda* of Otavalo alone had reached over 100.000 pesos⁵³. Mounting tribute debts encouraged fugitivism that sometimes involved migration to work in private *obrajes* where wages were 30 to 50 per cent higher than those paid in community mills⁵⁴.

Despite the existence of ordinances governing the operation of mills, that specified hours of work, wages, food and medical care⁵⁵, conditions of work were poor. Most workshops were barn-like structures with small windows, which meant they were poorly lit and ventilated, and were bitterly cold in winter. The largest *obrajes* contained separate buildings for different stages in the manufacturing process, but smaller ones housed all activities. Poor ventilation and the presence of indoor latrines encouraged the spread of disease and made them unhealthy places of work⁵⁶. Indians were often chained to looms, ill-treated or locked in to prevent them from escaping⁵⁷.

Hard work in the mills contributed to high mortality rates, infanticide and fugitivism, but textile manufacture in rural areas, particularly in the sixteenth century, was generally less destructive of native communities than other forms of forced labour that required workers to be absent for extended periods. *Obrajes* were generally constructed within Indian villages, additional workers being drawn from smaller villages located within a few miles. Even though in the seventeenth century labour gradually drifted to the private *obrajes* and migration increased, the fact that production took place in or near Indian villages meant that subsistence production and social relations could be maintained to a greater degree than where Indians were employed in activities such as mining or domestic service where workers were generally required to change their place of residence. Indeed the profitability of textile production depended on the persistence of Indian communities, which by bearing the costs of reproduction and maintenance

⁵¹ Alberto LANDÁZURI SOTO, *El regimen laboral indigena en la real audiencia de Quito*, Madrid, Imprenta de Aldecoa, 1959, pp. 108-58; TYRER [31], p. 163.

⁵² LANDÁZURI SOTO [51], pp. 110-158; TYRER [31], pp. 128-33, 161-162.

⁵³ AGI AQ 10 Audiencia 15.4.1620, AQ 61 Mañosca 10.4.1625.

⁵⁴ TYRER [31], p. 137.

⁵⁵ Javier ORTIZ DE LA TABLA DUCASSE, «Las ordenanzas de obrajes de Matías de Peralta para la audiencia de Quito 1621», *Anuario de Estudios Americanos*, Vol. 33, Sevilla, 1976, pp. 895-898, 915-931; Jorge VILLALABA, «Los obrajes de Quito en el siglo XVII y la legislación obrera», *Instituto de Historia Eclesiástica Ecuatoriana*, Vol. 8, Quito, 1986, pp. 51-52, 128-31, 135.

⁵⁶ TYRER [31], pp. 104-105.

⁵⁷ For example, ANHQ Presidencia de Quito (hereafter PQ) 1 ff.28r.-28v. Caciques de Latacunga 1.11.1608; AGI AQ 28 Memorial de los agravios...de Gabriel Villafuerte 1613, AQ 87 Memorial de los agravios...Martín de Vergara 25.4.1619; ANHQ PQ 1 f.102 Centeno Maldonado 4.10.1619; AGI AQ 30 Caciques of San Andrés 1.2.1625; WALTERS [44], pp. 152-53, 159-60.

of the labour force kept wages low and enabled cloth to be produced at competitive prices. This may explain why the level of population decline in these areas was lower than for most other highland regions.

The Agricultural Regions of Cuenca and the Northern Sierra

The Indian populations of the two predominantly agricultural areas—the regions of Cuenca and the northernmost sierra—experienced relatively low levels of decline, although there was some difference between them. Around Cuenca the level of decline was greater at 80 per cent, which was slightly higher than that of its textile-producing neighbour, Riobamba, whereas in the vicinity of Pasto it was only 57 per cent. The difference between the two regions does not deny the possibility that the impact of agricultural activities was similar since other factors were significant in influencing demographic trends. The lower decline in the Pasto region might be attributed to the later effective settlement of the region, while the higher level of depopulation around Cuenca can be associated with the demands made by expeditions and forced labour in the mines that dominated in the early sixteenth century.

Gold deposits were not extensive in the Cuenca region, but for a short period in the 1540s the mines of Santa Barbara absorbed a significant proportion of the workforce⁵⁸. Despite the introduction of ordinances governing conditions of work, it was claimed that most of those who worked in the mines died there and that those who returned to their homes, who did not die on the road, died shortly after⁵⁹. Difficulties with flooding and labour shortages soon caused mining to cease, so that as early as the 1570s Cuenca's *vecinos* were described as living on the profits from cereal cultivation and livestock raising⁶⁰.

Possessing a more temperate climate than regions to the north, the Cuenca region was particularly well suited for the production of European cereals, vegetables and fruit. As elsewhere, rural estates were established to the detriment of native communities, a process that was given added impetus by Viceroy Toledo's programme of *reducciones*⁶¹. The alienation of Indian lands was of some concern to royal officials who believed that ownership of land was fundamental to the preservation of Indian communities. Nevertheless, pressure on Indian lands seems to have had the positive effect of encouraging native communities to seek titles to their lands at an early date, which according to Victor Albornoz enabled

⁵⁸ JIMÉNEZ DE LA ESPADA [34], Vol. 2, p. 174 Oficiales reales 30.12.1576.

⁵⁹ AGI Indiferente General 2987 Auncibay, no date.

⁶⁰ JIMÉNEZ DE LA ESPADA [34], Vol. 2, pp. 173-74 Oficiales reales 30.12.1576, Vol. 2, pp. 268-69 Pablos 20.9.1582 and Vol. 2, p. 277 Gallegos 20.9.1582.

⁶¹ AGI AQ 21 Zúñiga 15.12.1574; Victor M. ALBORNOZ, *Cuenca: monografía histórica*, Cuenca, Editorial Austral, 1948, pp. 123-24.

them to remain proprietors of their lands for longer than elsewhere in Ecuador.⁶² At the same time as the alienation of native lands proceeded at a slower pace, the demands generated by agricultural activities, particularly livestock raising, were also relatively low. In fact demands for labour overall were moderated by the presence of only a few resident *encomenderos*, the absence *obrajes* and relatively light demands for labour in the mines⁶³. These arguments suggest that the level of depopulation in the Cuenca region should have been lower than in other highland regions, but these observations apply to the second half of the century after expeditions and harsh labour in mining had taken their toll.

Regional Variations in Depopulation on the Coast

Epidemics may have been the most significant factor in the decline of coastal populations, but there were marked differences in levels of depopulation that may be attributed to differences in the nature and intensity of Spanish settlement. The initial conquest of the region, especially the southern coast, was particularly brutal. Pedro de Alvarado's expedition in 1534, which comprised 500 soldiers, 2.500 Indians and 200 African slaves, appears unrivalled in the violence it inflicted on local populations⁶⁴. After his expedition it was said that scarcely a house remained inhabited and that of 20.000 Indians only a handful were left⁶⁵. Henceforth Spaniards travelling to Peru were unable to stop there for provisions because it was in open rebellion⁶⁶.

Following the pacification of the southern coast the most frequently cited cause of the continued depopulation was the employment of Indians in a number of arduous tasks, notably the extraction of timber and the navigation of *balsas* from Guayaquil to the Desembarcadero from whence people and goods moved overland to Quito⁶⁷. Timber was required by the shipbuilding industry and for the construction of houses, not only in Ecuador, but also on the treeless coast of

⁶² ALBORNOZ [61], pp. 123-24.

⁶³ Julio María MATOVALLE, *Cuenca de Tomebamba*, Cuenca, Imp. de la Universidad, 1921, p. 143.

⁶⁴ AGI PAT 185-I-7 Información que va de tierra firme 7.4.1534, PAT 185-1-8 Testimonio de una carta escrita en Jauja 25.5.1534, PAT 185-1-9 Información...a pedimiento de Almagro 12.10.1534.

⁶⁵ AGI PAT 185-1-9 Información...a pedimiento de Almagro 12.10.1534, PAT 28-12 Relación de la conquista del Perú, no date.

⁶⁶ AGI PAT 185-1-8 Testimonio de una carta escrita en Jauja 25.5.1534.

⁶⁷ AGI PAT 28-12 Relación de la conquista del Perú, no date; BNM 3044 f.366-67 President of Quito, no date; AGI AQ 9 Bedón 10.3.1598, AQ 9 Torres Altamarino 15.4.1601; JIMÉNEZ DE LA ESPADA [34], Vol. 1, pp. 126-27 Villasante, no date; Julio PIMENTAL CARBO, «Más altos que ellos, los arboles», *Cuadernos de Historia y Arqueología*, Vol. 6, Guayaquil, 1956, pp. 8-9, 12-13; Lawrence A. CLAYTON, *The Guayaquil Shipyards in the Seventeenth Century: History of a Colonial Industry*, Ph.D. diss., Tulane University, 1972, p. 145.

Peru. These tasks were associated with such high levels of mortality that as early as the 1550s it was anticipated the Indians around Guayaquil would not last long⁶⁸. Declining sources of Indian labour were compensated for in part by the importation of African slaves. While this relieved the burden of heavy labour falling on Indians, it contributed to racial mixing. The southern coast of Ecuador suffered a decline of about 99 percent, which is the highest level of decline of any region in the sixteenth century and is comparable to that experienced in the Caribbean islands in the first few decades of Spanish contact.

For the greater part of the century native communities in Esmeraldas were protected by the absence of minerals or large populations. Only at the end of the century did Mercedarian missionaries establish more than a fleeting Spanish presence there and even that was short-lived⁶⁹. However, prior to that time many native communities were destabilised by over fifty Spanish expeditions that penetrated the region in search of gold⁷⁰. However, probably greater effects derived from the presence of the Mulattoes, who emerged from the intermarriage of Blacks who were shipwrecked on the coast in 1553 and local Indians⁷¹. Their hostile stance contributed to increased conflict in the region, causing some Indian groups to move inland and seek protection from their neighbours and the missionary orders⁷². By the end of the sixteenth century, and only then in the last three years, the Mercedarians had managed to convert 5.000 Indians and Mulattoes⁷³. It has been estimated the population of Esmeraldas declined by about 71 per cent. This is significantly lower than that for the southern coast, where contacts with non-Indians more intense, and it is comparable to the Oriente where groups were protected by their inaccessible location.

REGIONAL VARIATIONS IN DEPOPULATION IN THE ORIENTE

Comparisons of demographic trends within the Oriente are made difficult by differences in the timing of contact. During the sixteenth century groups in the high *selva* came into sustained contact with Spaniards, but by the time the Jesuits began working in the province of Mainas most of their towns, mines and hacien-

⁶⁸ AGI PAT 28-12 Relación de la conquista, no date.

⁶⁹ Joel L. MONROY, *El convento de la Merced de Quito de 1534 a 1617*, Quito, Editorial Laboral, 1938, pp. 332-377; NEWSON [6], pp. 264-65.

⁷⁰ José ALCINA FRANCH, Encarnación MORENO and Remedios de LA PEÑA, «Penetración española en Esmeraldas (Ecuador): tipología del descubrimiento», *Revista de Indias*, Vol. 36, Madrid, 1976, pp. 65-121.

⁷¹ Although the offspring were technically *Zambos*, they were generally referred to as Mulattoes.

⁷² AGI 9 Barrio de Sepúlveda, no date, AQ 9 Descripción de los indios infieles 31.5.1597, AQ 10 Morga 1.4.1620.

⁷³ AGI AQ 9 Barrio de Sepúlveda 20.7.1600.

das had been abandoned. Depopulation ratios for different regions within the Oriente are not strictly comparable, therefore, though they are suggestive of demographic trends that might be associated with particular types of activity over a similar time period.

Among Indian groups in the Oriente, those in the high *selva* suffered greater depopulation during the sixteenth century as a consequence of sustained contact with Spaniards. The presence of alluvial gold deposits stimulated early expeditions to the region and served to maintain a Spanish presence there despite Indian hostility⁷⁴. In order to maintain political control of the area, no less than eleven Spanish towns and cities were founded, more than the rest of the *Audiencia* of Quito put together, and an excessive number of *encomiendas* were distributed, many of them comprising only ten or twenty Indians⁷⁵. Although many of the towns were short-lived and most *encomenderos* resided outside the region, the unregulated demands for labour for panning gold, for transporting goods to and from the sierra and, in Los Quijos and Macas, for the manufacture of cotton textiles were considerable. Sometimes Indians were forcibly transferred to the sierra where they were employed in the personal service of *encomenderos*, either as household servants or labourers on haciendas⁷⁶. The hardships imposed by these demands created widespread resentment that was expressed in fugitivism⁷⁷ and numerous revolts that cost many lives⁷⁸.

Further east the full impact of enslaving expeditions, missionization and epidemics was not felt until the seventeenth century. From the end of the sixteenth century Indian communities in the Napo-Aguarico region felt the impact of enslaving raids and to a lesser extent Franciscan and Jesuit attempts at missionisation. Those groups located closest to the sierra in the headwaters of the Napo and Coca suffered the most, but by the end of the seventeenth century the whole of the Napo Valley had been affected⁷⁹. These raids and missionary activities not only brought disease, but were highly disruptive to subsistence activities and social life, to the extent that most opted to flee from exposed locations along the

⁷⁴ NEWSON, [6], pp. 271-276, 289-291.

⁷⁵ AGI AQ 8 Santillán 15.1.1564, AQ 18 Cabildo of Zamora 4.12.1565, AQ 211 Real cédula 29.11.1566, AQ 23 Caciques of Yaguarzongo and Jaén 10.3.1591, AQ 18 Hernández, no date.

⁷⁶ AGI AQ 25 Lobato de Sosa, no date; Archivo Municipal de Quito, Morga cedulario pp. 194-95 13.7.1627; Karen POWERS, «Migración vertical en la Audiencia de Quito: El caso de los Quijos en el siglo XVI», *Revista Ecuatoriana de Historia Económica*, Vol. 2, Quito, 1987, pp. 107, 116-26.

⁷⁷ BNM 3.044 f.478 Alonso de Peñafiel, no date, c.1569-70; AGI AQ 25 Lobato de Sosa, no date; Udo OBEREM, *Los Quijos: Historia de la transculturación de un grupo indígena en el oriente ecuatoriano*, Otavalo, Instituto Otavaleño de Antropología, 1980, p. 82; POWERS [27], pp. 30-34.

⁷⁸ AGI PAT 97B-5 Información... de los servicios de Alonso de Bastidas 1562; J. RUMAZO GONZÁLEZ, *La región Amazónica en el siglo XVI*, Quito, Banco Central de Ecuador, 1982, pp. 106-109; OBEREM [77], pp. 76-78.

⁷⁹ Linda A. NEWSON, «Between Orellana and Acuña: a lost century in the history of the Amazon», *Bulletin de l'Institut Français d'Études Andines*, Vol. 25, 2, Lima, 1996, pp. 204-217.

major rivers⁸⁰, while many of those enslaved were transferred outside the region. It has been estimated that the population declined by a ratio of 8.3:1, though this figure masks considerable variation between groups, with the heaviest losses being sustained by those who lived nearest the frontier of Spanish settlement and by the Omagua who inhabited the exposed banks of the Napo.

Epidemics, enslaving raids, and missionization were also the major causes of Indian depopulation in the *gobernación* of Mainas, but there slave raids played a less significant role than missionary activities. The region suffered raids before the first town, San Francisco de Borja, was founded in 1619, after which excessive demands for service provoked widespread unrest that culminated in a major revolt in 1635⁸¹. This precipitated the arrival of Jesuit missionaries in 1638 who gradually expended their arena of activity down the Marañón and its tributaries, and later up into the Napo and Aguarico, so that by 1768 the province of Mainas comprised eighty *reducciones*⁸². Missionary activity not only resulted in major transformations to native societies, but facilitated the introduction of Old World diseases⁸³. During the seventeenth century the province was struck by at least four major epidemics and there were other smaller outbreaks⁸⁴. Meanwhile, *entradas* continued to take their toll and in the second half of the seventeenth century the Portuguese began conducting enslaving raids on the lower reaches of the Marañón. It has been estimated that up to 1700 epidemics and *entradas alone* may have reduced the population of the province of Mainas by nearly two-thirds⁸⁵. The depopulation ratio of 2.7: 1 is low, especially compared to that of 8.3:1 calculated for the Napo-Aguarico region, but may be explained by the more disruptive effects of enslaving raids in the latter region and that some groups in the extensive province of Mainas were able to escape epidemics, raids and missionization.

CONCLUSION

It has been suggested that the population of the *Audiencia* of Quito, excluding the Napo and Aguarico valleys and the Jesuit province of Mainas, declined from an estimated population of about 1.5 million at contact to about 217,200 in 1600. This is a decline of about 85 percent or an average ratio of 6.9:1. This is generally lower

⁸⁰ David G. SWEET, *The Population of the Upper Amazon Valley in the 17th and 18th Centuries*, M.A. diss., University of Wisconsin, 1969, pp. 143-45.

⁸¹ Francisco de FIGUEROA, *Relación de la misiones de la compañía de Jesús en el país de los Maynas*, Madrid, V. Suarez, pp. 10-11.

⁸² José CHANTRE Y HERRERA, *Historia de las misiones de la compañía de Jesús en el Marañón español*, Madrid, Imprenta de A. Avrial, 1901, pp. 578-80.

⁸³ FIGUEROA [81], p. 165.

⁸⁴ NEWSON [6], pp. 310-321.

⁸⁵ *Ibidem*, [6], pp. 322-234.

than that experienced by native societies in Mexico and Central America. The President of the *Audiencia* of Quito, Antonio de Morga, in 1623 judged that the native population in Ecuador had survived to a greater degree than in Peru. He attributed this to the absence of rich gold and silver deposits and wealthy traders. Ecuador's citizens he observed were supported by a few agricultural activities and some *obrajes*, and were content to live a life of ease⁸⁶. While the overall level of decline may have been lower than in many other parts of the empire, this study has also shown that there were marked regional variations in depopulation.

The study suggests that the clear contrast in levels of decline between the tropical lowlands and highlands, which has been noted in other parts of Latin America, cannot be identified for Ecuador, at least for the sixteenth century. Indeed, the northern coast and the Oriente experienced levels of decline more comparable to that in the sierra; indeed some lowland groups, such as those in Esmeraldas and the high *selva*, survived better than most groups in the highlands. Inasmuch as there were higher levels of depopulation in the lowlands, those levels of decline can best be explained not by the presence of tropical fevers, but by the greater frequency of introduction of other diseases, and in the case of the south coast, its particularly brutal conquest.

While it is recognised that the introduction of Old World diseases was a major factor in the decline of native peoples and that the impact varied with the character of native societies, other political and economic factors may be more important in explaining finer regional patterns of demographic collapse. The significance of the intensity of Spanish settlement may be seen in the relatively high levels of depopulation in the sierra and high *selva*, compared to the Oriente and Esmeraldas where during the sixteenth century contacts were more transitory. It was not only the number of settlers that was important but, as has been shown, the economic enterprises that they established. The higher mortality levels associated with mining and its more disruptive effects on native communities are reflected in the greater levels of depopulation in the southern sierra and parts of the high *selva*. On the other hand population decline appears to have been lower in predominantly agricultural areas where the demand for labour was lower, and in areas of textile manufacture, where despite the harsh conditions in the *obrajes*, the establishment of mills in Indian communities minimized disruption to subsistence patterns and family life. An examination of demographic trends on a region-by-region basis thus reveals the complexity of the processes at work and urges caution in attributing the demographic collapse of native peoples to one or two factors operating in isolation.

⁸⁶ AGI AQ 10 Morga 15.4.1623.

This paper examines regional variations in Indian population decline Ecuador in the sixteenth century. It examines the impact of Old World diseases and the economic enterprises the Spanish established in the region. Although the population declined by 85 percent, this figure masks considerable variations. There was no marked variation in levels of depopulation between the highlands and lowlands, but variations within those broad regions.

KEY WORDS: *Ecuador, depopulation, Spanish conquest, Old World diseases, economic activities, missions.*
